Uinta National Forest

A Black Hills beetle infestation in lodgepole pine in the Current Creek Drainage south of Heber City, Utah, has been active for the past several years. Two years ago an explosive buildup took place. In 1963 approximately 1,500 lodgepole were infested.

Fall examinations this year indicate the infestation has taken a sharp downward trend. A reconnaissance through the infested area found only three newly attacked trees. The beetles have killed 80-90 percent of the lodgepole pine above 6 inches DBH and only a few possible host trees remain scattered throughout the infested area. Sixty-five to seventy percent of the stand within the infestation is other species, alpine fir, Douglas-fir, and aspen. The infestation now is endemic and no control action is needed.

Wasatch National Forest

An epidemic of Black Hills beetle has been active on the Wasatch National Forest for more than 14 years. In an extensive suppression effort, known as the North Slope Project, various kinds and degrees of control measures, such as chemical treatment, felling and burning, burning standing, and logging, have been used in an attempt to reduce the number of beetle-killed trees. Since the start of the Project in 1958, over 500,000 infested trees have been treated. Last year (1963) was the first year all the infested acreage was treated. This spring it was only necessary to treat 12,561 infested trees.

Treating and logging the past few years have removed infested trees as follows: 1963 - 81,000 trees; 1962 - 165,000 trees; 1961 - 167,000 trees; 1960 - 166,000 trees.

This sizeable reduction in the number of infested trees is largely due to control efforts. However, natural factors are now affecting the remaining bark beetle population. Whether the natural factors will exert a definite controlling influence cannot be determined at this time. A few pockets of infestation still exist.

Fall operational surveys estimate there are 2,740 newly attacked trees in the Utah section and 1,170 trees in the Wyoming section of the North Slope Project.

Even though this infestation is now at a low level, treatment should be done next year to eliminate the chance of the infestation rebuilding.

An additional 200 infested trees, widely scattered over 7,300 acres, are located in the Bear River area a considerable distance west of the main North Slope Project area.

A small, potentially serious, outbreak of Black Hills beetle was detected near the Wasatch-Ashley National Forest border in Deer Creek, a side drainage of the Duchesne River. Faded lodgepole pine occurred in five groups of approximately 100 trees per group. This infestation was not examined this year. No other serious outbreaks of Black Hills beetle were detected on the Wasatch National Forest this year.

Idaho - Bureau of Land Management, State, and Private Lands

Blackfoot Mountains

The isolated Black Hills beetle outbreak reported last year on Bureau of Land Management, State, and private lands in the Blackfoot Mountains southeast of Idaho Falls, Idaho, has continued to increased in size and severity. Ground observers estimate 10,000 - 15,000 lodgepole pine are infested on approximately 25,000 acres. Brood densities remained high averaging 184.6 per square foot. Average DBH of infested trees examined this fall was 19.8 inches. Buildup ratio was about 1:1. This infestation is epidemic and expected to continue with an increasing trend for at least one more year.

Lodgepole pine in this area makes up only about one-third of the stand, the remainder being alpine fir, Douglas-fir, Engelmann spruce, and aspen. Seventy percent of the lodgepole pine is in the overmature and mature age classes with thirty percent poles and reproduction.

Further losses can be expected in this area if no control measures are taken.

Utah - Uintah and Ouray Indian Reservation

A small infestation of the Black Hills beetle in ponderosa pine was evaluated at the request of the Bureau of Indian Affairs.

It was determined that approximately 70 overmature ponderosa pine have been killed by the Black Hills beetle over the past five years in the Hill Creek-Willow Creek Drainages on the Uintah and Ouray Indian Reservation and intermingled state lands. Infested trees have occurred as singles and in widely scattered groups of five to seven trees per group. Approximately 80 percent of the stand is mixed Douglas-fir, alpine fir, and Engelmann spruce. No newly infested trees were found adjacent to trees which adult beetles had emerged from this year. The infestation appears to be static with no indication of an increasing trend.

Wyoming - Bureau of Land Management, State, and Private Lands

Kismet Peak

The aggressive infestation of Black Hills beetles in lodgepole pine stands adjacent to the Teton National Forest in the upper Hoback River Drainage near Kismet Peak in western Wyoming continues at an epidemic level. A survey conducted by Bureau of Land Management personnel during late fall of 1963 showed approximately 25,000 trees were infested on these lands. Ground evaluations this fall (1964) showed a rough estimate of 30,000 - 40,000 lodgepole pine currently infested on 10,000 - 15,000 acres. Brood densities averaged 230.8 per square foot of bark sample. Buildup ratio of newly attacked trees to trees killed last year ranged from 2:1 to 3:1. Very few "pitchouts" were observed during ground evaluations. Average DBH of infested trees was 9.6 inches. All indications point to a continuing epidemic condition with no evidence of this infestation dying out by next year. To be effective any suppressive action contemplated for this infestation would need to be a cooperative endeavor involving all land owners.

Little Mountain

A small Black Hills beetle infestation of approximately 100-150 infested lodgepole pine on about 300 acres south of Rock Springs, Wyoming, near Brown Parks in the Three Corners area, was reported by Bureau of Land Management personnel. Ground evaluations showed the infestation to be in a more or less static condition with a probable decreasing trend. Brood densities were low, averaging 167.2 per square foot. Attacks averaged 8.8 with 65.2 inches of gallery per square foot. Buildup ratio of "red tops" to newly attacked trees was less than 1:1. The ratio of trees "pitched out" to trees successfully attacked was 1:3.

The timber on the Little Mountain area is more or less isolated and is some distance from other lodgepole pine type that could become infested. About 70 percent of the timber type is alpine fir. Sixty to seventy percent of the lodgepole pine is pole sized and would not serve as suitable host material for the Black Hills beetle. Entomologically, control action is not warranted.

South Piney Creek

The Black Hills beetle infestation in lodgepole pine reported last year in South Piney Creek, west of Big Piney, Wyoming, appears to be at a static level and may be decreasing. Brood averaged 201 per square foot, but the buildup ratio has dropped to one new attack for each tree killed last year. This infestation does not appear to be as aggressive as most other Black Hills beetle infestations in lodgepole pine in Region Four. At present no suppressive action appears necessary. The infestation will be evaluated again next year to determine if the downward trend continues.

Black Hills Beetle.

Cache Natl. Forest.

1) Treated by Force Account Crews.

2) Full Breed Density 145 sq/ft. 180. Not Epidemic. No trees accounted?

a) What constitutes a sample? How many trees, size of tree, etc.

5 trees - 1 sample

20 trees 4 dia classes

Caribou Natl Forest.

1) Ratio of New to old (Red tops) 3:1. What does this indicate. Build-up.

2) Attacks sq ft. (~~Spring counts~~ Summer counts?).

3) Who makes surveys for build-up ratio, new attacks, pitch-outs, etc.

4) Estimate Approx 6000 newly attacked trees. How done? Entomologists

5) How are operational surveys conducted.

% sample, type of plot, method of cruising, ~~wedge~~ etc.

6) In Tables last column listed Trend E.g. 79,600 etc. What is latter, No. Expected Trees attacked?

Wyoming Page 21

1) Ground evaluations this fall (1964) showed a rough estimate of 39000 - 40,000 Lodgepole Pine currently infested on 10,000 - 15,000 acres.

DISCUSSION

Black Hills beetle infestations are subject to many changing forces between the time the fall evaluations are made and beetle flight takes place the following summer. Some of the occurrences of the last few years that affected population survival and densities are: parent adults have emerged and reattacked, parent females have resumed egg laying and have extended parent galleries, overwintering progeny have been drastically reduced by extremely low temperatures to localized "cold belts." In other cases survival was greater than ordinary. Rapid drying of cambium tissue in the spring has caused considerable brood mortality, and, of course, predators and parasites have caused variations in spring and summer bark beetle population densities. Thus, it is paramount that infestations need to be evaluated repeatedly to avoid unnecessary expenditure of control funds and to disclose outbreaks that are developing faster than fall evaluations indicated. In an area subject to sudden, widespread buildups of infestations such as Region Four, manpower for evaluations is always short. To improve the efficiency of evaluation work the entomologists of the Division of Timber Management cooperated with Walter E. Cole of the Intermountain Forest and Range Experiment Station in the development of a series of sequential sampling tables. Tables were developed for sampling egg, larvae, pupae, and adult stages of the Black Hills beetle in lodgepole pine. The object of the tables is to determine when sufficient sampling is done to be representative of the total. Thus, oversampling is eliminated and manpower and money saved. The tables were tested this year and will be tested again next year to determine the validity of this possible shortcut method of sampling.

Time was insufficient this year to evaluate all infestations. It was necessary, therefore, to lean heavily on the entomologist's judgment in some cases. In others that could not be visited, it is impossible to predict the infestation potential. Some risk is involved, therefore, in deciding for or against control, especially this year, when conditions are so varied; i. e., some outbreaks are dying out through natural causes or a combination of control and natural factors, other outbreaks have developed explosively, and still others seem to be lying in the balance between epidemic and endemic conditions. Undoubtedly some infestations not evaluated, are serious and should be treated while still small. At the same time not all infestations need treatment.

Accurate, up-to-date information on conditions of outbreaks and reliable predictions of insect population trends are necessary to the land manager for planning control strategy. As an example, information that explosive buildups are to occur in many centers in a large stand of pure lodgepole pine with the potential of coalescing into a large scale outbreak will enable the land manager to develop a coordinated long term, effective suppressive program.

Evaluations can supply biological data to show that outbreaks may develop to such a large scale that all-out control is impractical. In

such cases, a detailed knowledge of the biological factors involved in the population explosion can be useful in establishing areas that can be left untreated. In these cases, however, the evaluators should to the best of their ability predict what losses can be expected if large infestations are allowed to run their natural course.

Richard I. Washburn

RICHARD I. WASHBURN
Section Chief

APPROVED: Paul A. Grossenbach

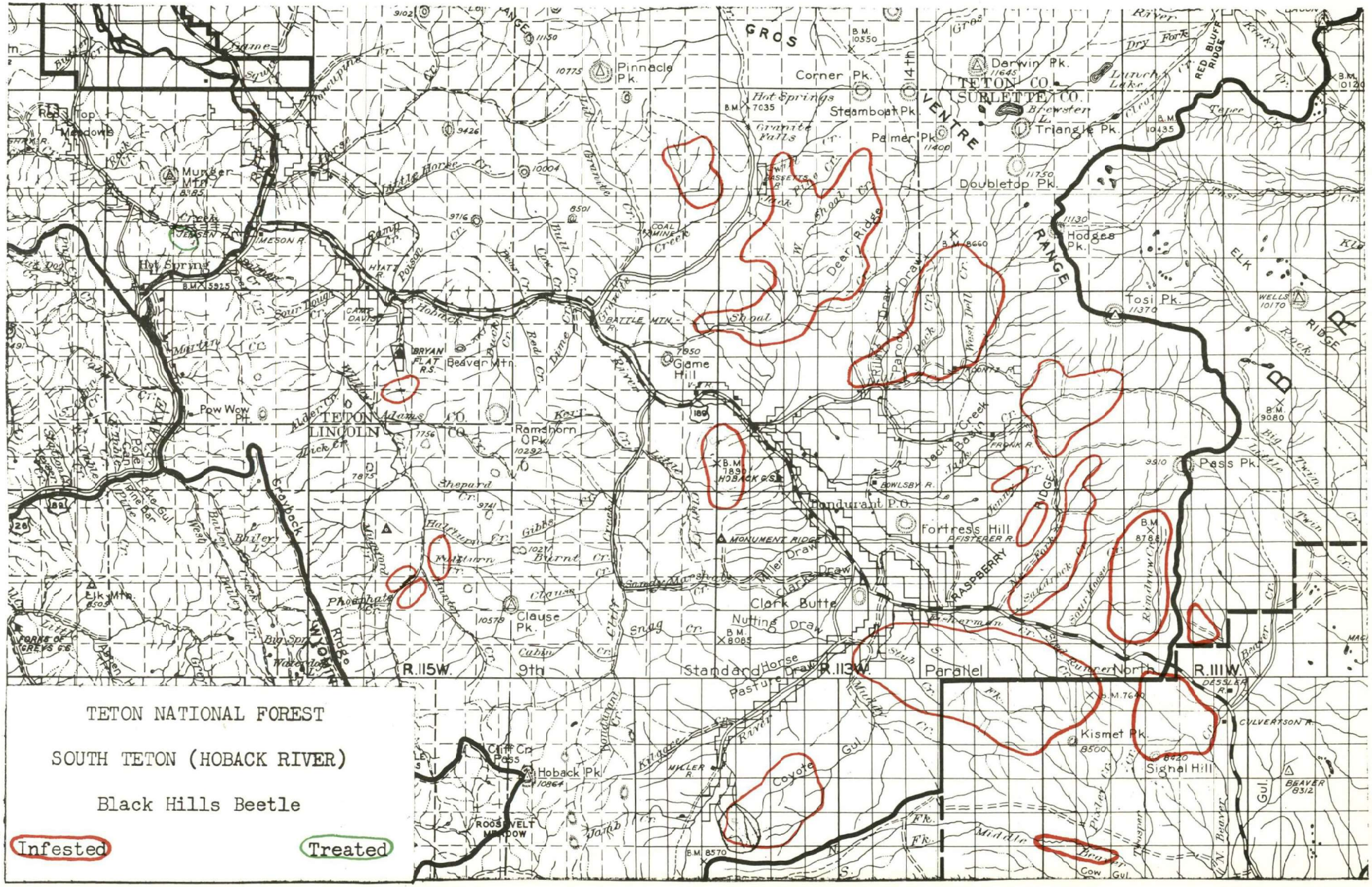
PAUL A. GROSSENBACH
Branch Chief

DATE: 12/28/64

APPROVED: Joel L. Frykman

JOEL L. FRYKMAN
Assistant Regional Forester

DATE: 12-30-64


TETON NATIONAL FOREST
SOUTH TETON (HOBACK RIVER)
Black Hills Beetle
Infested
Treated
GROS VENTRE RANGE
ELK RIDGE
RED BUFFALO RIDGE
RASPBERRY RIDGE
TETON CO.
SUBLETTE CO.
LINCOLN CO.
Pinnacle Pk.
Corner Pk.
Darwin Pk.
Steamboat Pk.
Palmer Pk.
Triangle Pk.
Doubletop Pk.
Hodges Pk.
Tosi Pk.
Pass Pk.
Kismet Pk.
Signal Hill
Hoback Pk.
Cliff Cr. Pass
Clause Pk.
Ramshorn Pk.
Game Hill
Beaver Mtn.
Munger Mtn.
Elk Mtn.
Red Top Meadows
Hot Spring
Pow Wow Pt.
Bryan Flat R.S.
Hoback R.S.
Monument Ridge
Fortress Hill
Clark Butte
Nutting Draw
Standard Horse Pasture
Parallel
Jack Brown Creek
Dear Ridge
Shoal
Hoback River
Greys River
Snake River
Bridger Wilderness
Roosevelt Meadow
Jensen Cr.
Jimeson R.
Fossil Mtn.
Bowlsby R.
Fossil R.
Fish Cr.
Sheep Cr.
Sand Draw
Miller Draw
Coyote Gul.
Beaver Gul.
Cow Gul.
Culverson R.
Dry Fork
Dutch Lake
Brewster L.
Taylor
Wells
Twin
Big Twin
Rock
Sour Dough Cr.
Camp Davis
Poison
Dime
Red Cr.
Burnt
Shepard
Halfway
Multhorn
Phosphate
Sandy Marsh
Snag
Cabin
Stub
Rimdriver
Sour Mouse
Twisper
Pickle
Middle Fk.
N. Fk.
S. Fk.
Bridger
Parrenan
Kinney
Tie
Willow
Alder
Dick
Pole
Wagon
Barrier
Rattler
Ridge
Gibbs
Clarke
Miller
Kelly
Jakie
Tomahawk
Cliff
Wiley
Wilder
Murray
Fork of Greys R.
Buy Spot
Wyoming
Idaho
R.115W.
R.113W.
R.111W.
9th
North
Parallel
Standard Horse Pasture
Hot Springs
Granite Falls
Assets
Coal Mine Cr.
Battle Mtn.
Jakie
Tie
Willow
Alder
Dick
Pole
Wagon
Barrier
Rattler
Ridge
Gibbs
Clarke
Miller
Kelly
Jakie
Tomahawk
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R.113W.
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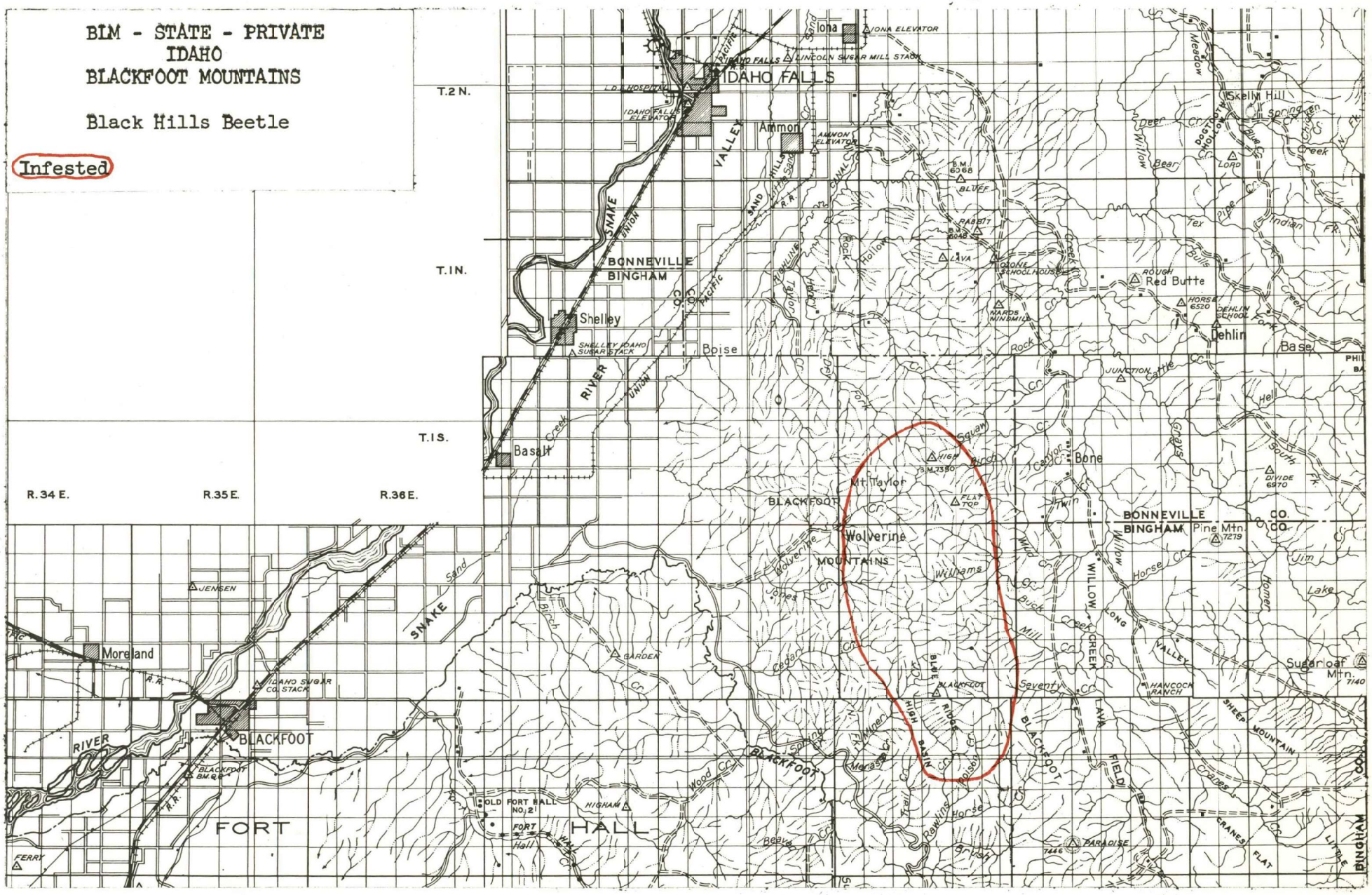
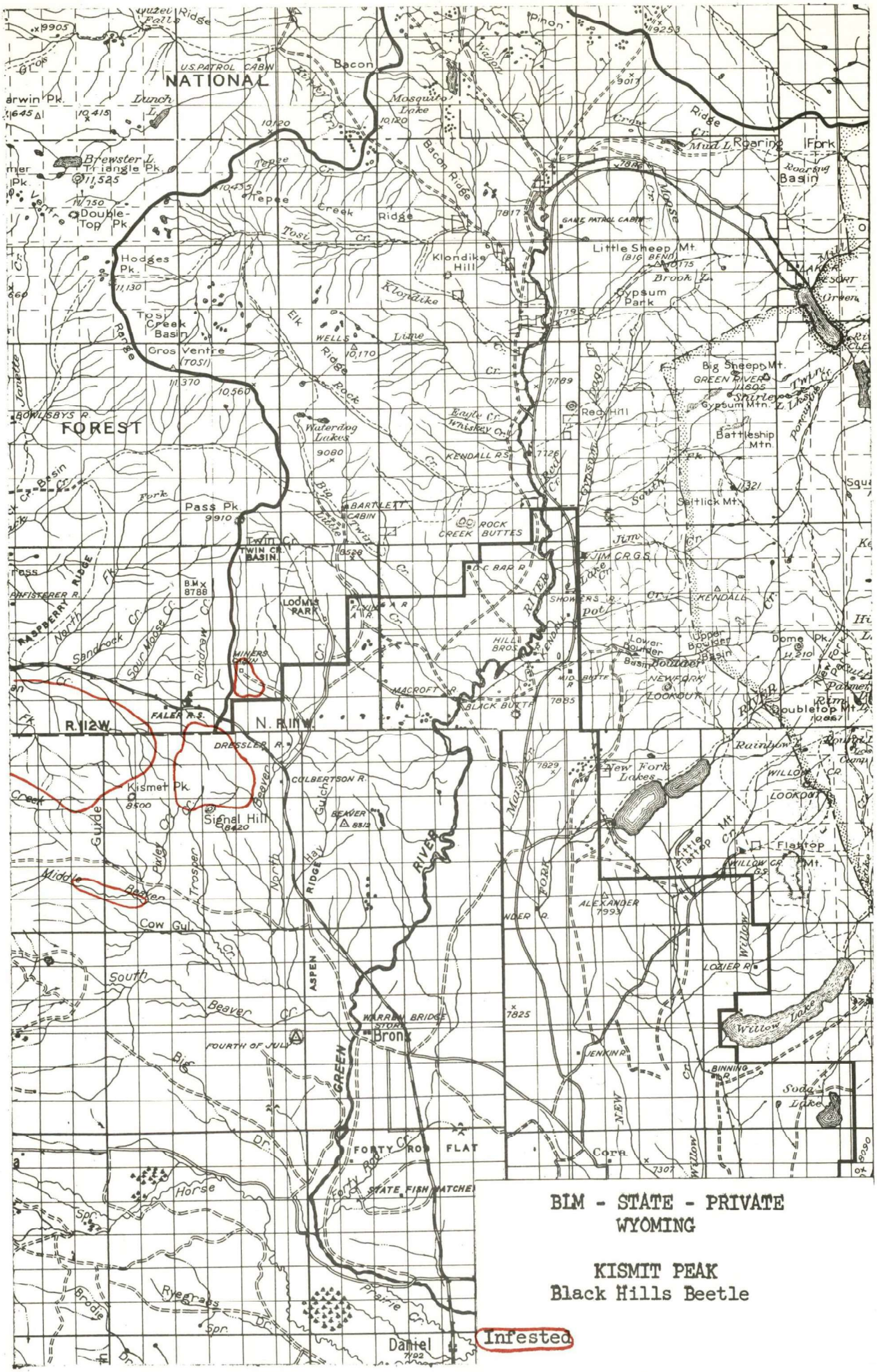
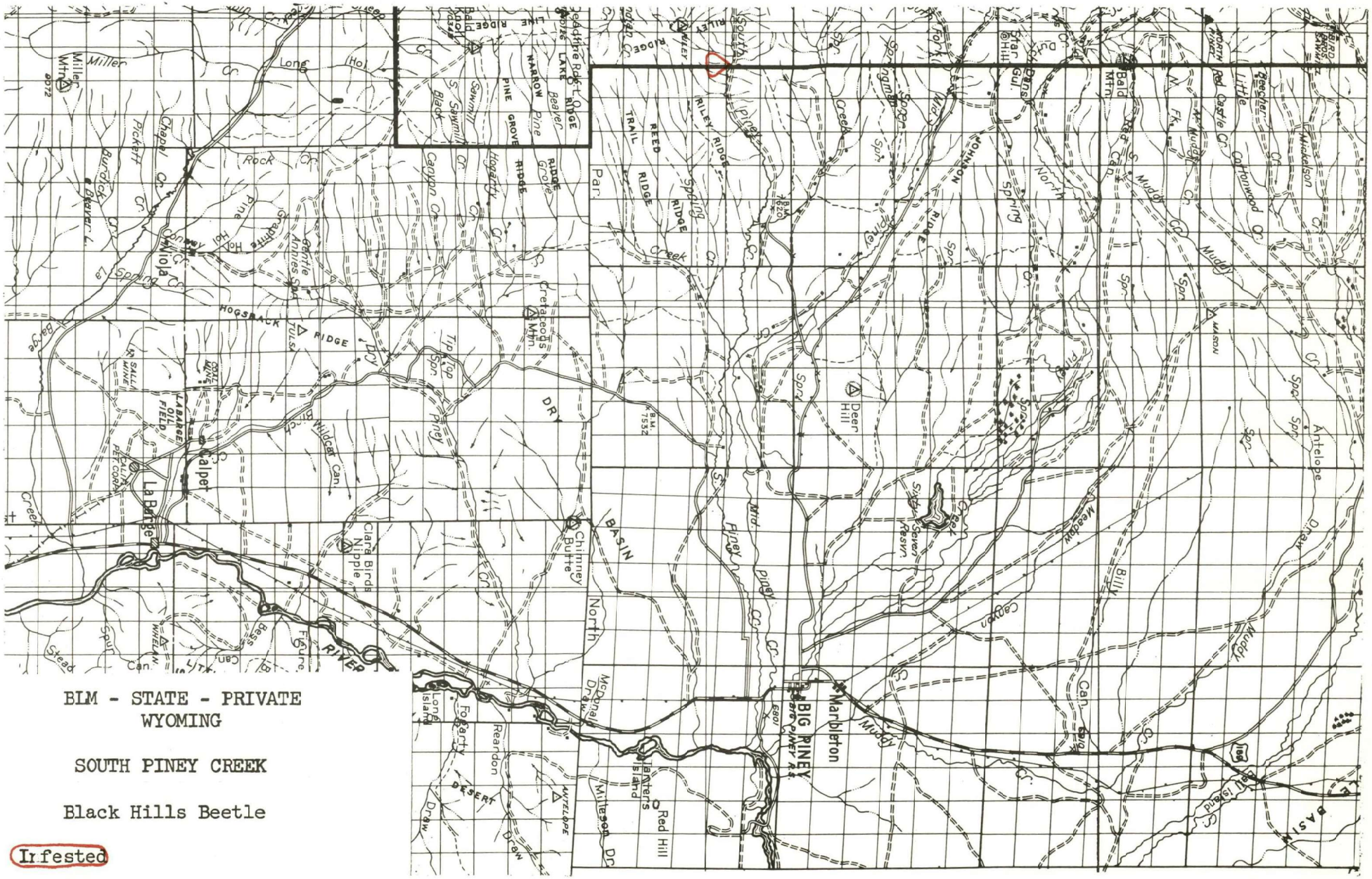
Hot Springs
Granite Falls
Assets
Coal Mine Cr.
Battle Mtn.


BLM - STATE - PRIVATE
IDAHO
BLACKFOOT MOUNTAINS
Black Hills Beetle
Infested
T.2 N.
T.1N.
T.1S.
R.34 E.
R.35E.
R.36E.
IDAHO FALLS
Ammon
Iona
Shelley
Basalt
Boise
BONNEVILLE
BINGHAM
Red Butte
Dehlin
Base
Bone
Mt Taylor
BLACKFOOT
Wolverine
MOUNTAINS
Pine Mtn
Moreland
FORT
HALL
Sugarloaf Mtn.
SNAKE
RIVER
VALLEY
WILLOW
CREEK


NATIONAL
FOREST
Bacon
Mosquito Lake
Brewster L.
Triangle Pk.
Double-Top Pk.
Hodges Pk.
Tosi Creek Basin
Gros Ventre (TOSI)
Klondike Hill
Little Sheep Mt.
(BIG BEND)
Gypsum Park
Big Sheep Mt.
GREEN RIVER
Gypsum Mtn.
Red Hill
Battleship Mtn.
Saltlick Mt.
Waterdog Lakes
KENDALL RS
BARTLETT CABIN
ROCK CREEK BUTTES
TWIN CR. BASIN
LODMIS PARK
MINERS CAMP
FALER R.S.
R.112W.
N. R.111W.
DRESSLER R.
COLBERTSON R.
Kismet Pk.
Signal Hill
BEAVER
Guide
Middle
Beaker
Cow Gulch
North Ridge
Hay
RIVER
ASPEN
WARREN BRIDGE STORE
Bronx
FOURTH OF JULY
GREEN
FORTY ROD FLAT
STATE FISH HATCHERY
Daniel
Infested
Jim Creek
KENDALL
Lower Boulder Basin
Upper Boulder Basin
NEW FORK LOOKOUT
Dome Pk.
Doubletop Mt.
New Fork Lakes
WILLOW CR.
LOOKOUT
Flattop Mt.
ALEXANDER
LOZIER R.
Willow Lake
Soda Lake
BINNING
Corn
JENKINS
BIM - STATE - PRIVATE
WYOMING
KISMIT PEAK
Black Hills Beetle


Miller Mtn.
Miller Cr.
Long Hol
Rock Cr.
Pickett Cr.
Chapel Cr.
Burdock Cr.
Beaver L.
Spring
Cr.
Pine Hol
Granite Annies Spr.
Canyon Cr.
Hogarty Cr.
Black Spr.
S. Sawmill Cr.
Sawmill Cr.
Bald Knob
Deadline Ridge
Ridge
Lake
Beaver
Pine
Narrow
Pine
Grove
Ridge
Ridge
Grove
Ridge
Trail
Reed
Ridge
Riley
Ridge
Spring
Creek
Hogback
Ridge
Tuls
Cretaceous Mtn.
Tip Top Spr.
Piney
Dry
Wildcat Can.
Salt Mine
Gyp. Mine
La Barge Field
Calpet
La Barge
Creek
Clark Birds Nipple
Chimney Butte
Basin
North
Piney
Creek
Fence
Bass
Figure
River
Spur
Stead
Can.
Wheelan
Long Island
Forty
Rearden
Desert
Draw
Brown
Mytelope
McDonald Draw
Miller Draw
Red Hill
Waters Island
Big Piney
Marbleton
Deer Hill
Par.
South
Fork
Star Hill
Bald Mtn.
Bear Can.
Muddy
Creek
Spring
Spr.
Sec.
Sec. Spr.
Mid Piney
Sec. Spr. Sewer Resvr.
Meadow
Drain
Antelope
Billy
Murphy
Can.
Corp.
Cr.
Little Red Castle Cr.
Cottonwood Cr.
Whitehelson
North Piney
Bird Canyon
Ranch
Gul.
Pens
Fk.
Muddy
Cr.
Spr.
Wilson
Sec.
Spr.
Sec.
Spr.
Antelope
Drain
Billy
Murphy
Can.
Corp.
Cr.
Muddy
Cr.
Spr.